

REMARKS

Claims 1-9 are pending in this application. By this amendment, Applicant amends claims 1 and 5 and cancels claims 3, 7 and 9-26.

Claims 1, 2, 5 and 6 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Wei et al. (U.S. Patent No. 5,156,986). Claims 3, 4, 7 and 8 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Wei in view of Miyago et al. (U.S. Patent No. 5,036,370).

Applicant has amended claims 1 and 5 to recite:

“a gate including a double-layered structure having a first metal layer which is a bottom layer disposed on the substrate and a second metal layer disposed on the first metal layer, the first metal layer including aluminum, the second metal layer being arranged on the first metal layer to prevent hillock at the sides of the aluminum first metal layer, the first metal layer being wider than the second metal layer by about 1 to 4 μm ”

As described in the present specification, Applicant's claimed invention provides a solution to a problem which occurs when Aluminum is used as a bottom layer for a double-layered gate. This problem is that hillock occurs at the sides of the Aluminum bottom layer and causes improper functioning of the TFT. Applicant's claimed combinations including the gate structure noted above eliminates hillock at the sides of the Aluminum bottom layer of the gate by arranging the second metal layer to prevent hillock and to be smaller than the first metal layer (Al layer) by about 1 to 4 μm .

In contrast, Wei teaches a gate having a double-layered structure in which the bottom layers are either Ti or Chromium, which do not experience hillock. In addition, Wei did not even recognize any hillock problems or solutions thereto because Wei does not use an aluminum layer to form a gate.

Miyago does use an aluminum layer in a double-layered gate and does recognize a hillock problem which occurs along a top surface of a bottom aluminum layer located between the aluminum layer and a top layer. Miyago provides an entirely different solution by providing a clad structure for causing the top-surface hillock

problem to be reduced. More specifically, Miyago teaches that in order to solve the top surface hillock problem, a first tantalum layer is put on the Al-Mo double layer structure and then a TaOx layer is put on the Ta layer. Miyago fails to recognize the side hillock problem with the aluminum bottom layer and also fails to recognize the necessity or desirability for Applicant's claimed second metal layer being arranged on the first metal layer to prevent hillock at the sides of the aluminum first metal layer and the first metal layer being wider than the second metal layer by about 1 to 4 μm .

In view of the foregoing remarks, Applicant respectfully submits that claims 1 and 5 are allowable. Claims 2, 4 and 6, 8 and 9 are dependent upon claims 1 and 5, respectively, and are therefore allowable for at least the reasons that claims 1 and 5 are allowable.

In view of the foregoing remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are respectfully solicited.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service to Addressee as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on November 17, 1998:

Respectfully submitted,

Joseph R. Keating

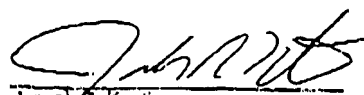
Name of Registered Representative



Signature

November 17, 1998

Date of Signature



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